Ethernet-232

User's Manual

Design Gateway Co., Ltd.

Rev 1.0

(PD0503-6-00-01E)

*** Please read this manual carefully before using Ethernet-232 ***

Revision History

Revision	Date	Detail of change
1.0	28 December 2005	Initial Release

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1. Introduction

Thank you very much for purchasing Ethernet-232. Please check that all the following items are in the box. If anything is missing or damaged, contact your distributor or Design Gateway Co.,Ltd.

- Ethernet-232 Board
- +5V Power Adapter
- CD (contents : Configuration software, User's Manual)
- User's Manual

Ethernet-232 is an industrial-grade Ethernet-serial device server for connecting one RS-232 port from the equipment like POS, Kiosk, Printer, PLC and other devices directly to Network. The Ethernet-232 adds networking capability to existing equipment by enabling serial communication over longer distances and low addition cost. Ethernet-232 can be configured over Web Browser, TCP without platform and distance limitation.

1.1. Summary Feature

1. RS – 232 Serial Interface
   - Data Rate : 300 – 115200 bps
   - Character : 7 or 8 bits
   - Parity : Odd / Even / None
   - Stop Bit : 1 or 2 bits
   - Control Signal : DTR, DCD, CTS, RTS
   - Flow Control : XON/XOFF, RTS/CTS
2. 10 BaseT Ethernet interface
   - RJ45 Connector with LED indicator.
   - Protocol : ARP, ICMP, TCP/IP, DHCP, HTTP, SNMP
3. Device configuration
   - Web Browser.
   - Windows Utility.

4. SecurityDevice driver

   Optional 128 bit AES Encryption

5. Device driver

   Virtual COM Port of Windows OS

1.2. System Requirement

1. Windows 2000 or Windows XP
2. 10 MB of available disk space for Windows 2000 / Windows XP
3. 64 MB of available RAM for Windows 2000
4. 128 MB of available RAM for Windows XP
5. 10/100 Mbps LAN card

1.3. Warranty Policy

1. Product warranty is valid for 1 year from purchasing date.
2. Warranty is void if any modification has been made to this product and any incorrect operation from this manual or warranty sticker is torn or damaged.
3. In order to claim for product exchange or technical support within warranty period, official receipt is required for unregistered customer as an evidence of purchasing whereas official receipt is unnecessary for registered customer (please fill up registration card attached herewith the product and send back to Design Gateway Co.,Ltd).

2. Ethernet-232 Detail

Figure 2-1 Ethernet-232

2.1. Ethernet-232 Description

A high-level block diagram of Ethernet-232 is shown in Figure 2-2 followed by a brief description of connector module.

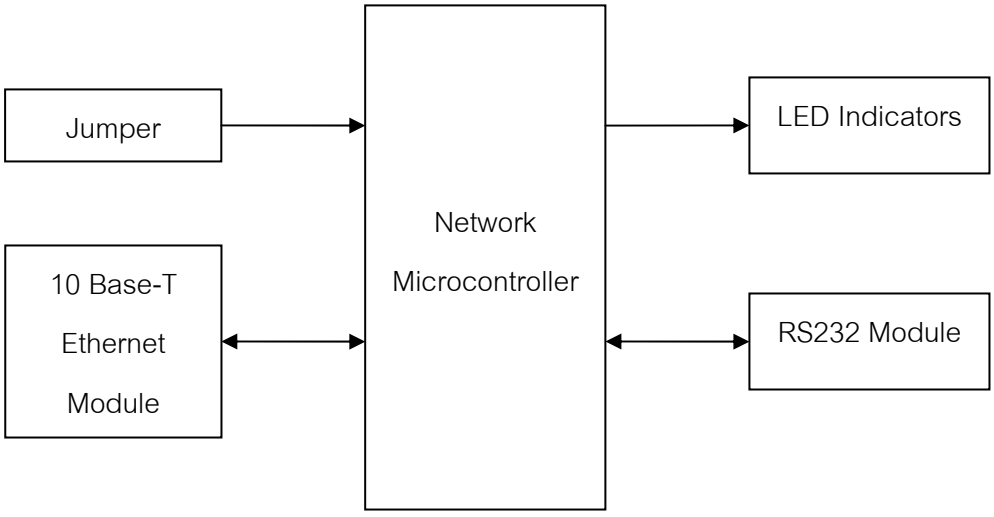

Figure 2-2 Block Diagram of Ethernet-232

2.2. 10 Base-T Ethernet Module

Ethernet-232 provides 10 Base-T Ethernet Module to connect Ethernet-232 with network. Both LAN cable and cross cable can be used with Ethernet-232.

2.3. RS232 Module

Ethernet-232 module provides RS232 module for connection from Ethernet-232 to PC or user's board. The RS232 interface signal is RS232 standard.

2.4. Jumper

Default value or user setting value can be selected by using jumper. If jumper is close, Ethernet-232 use default both IP address and MAC address. Otherwise, if jumper is open, Ethernet-232 use user setting both IP address and Mac address.

2.5. LED Indicator

LED indicator indicates status of power.

3. Quick Start

1. Unplug LAN cable from user's PC.
2. Remove jumper from Ethernet-232.
3. Use cross cable to connect Ethernet-232 board to PC.
4. Set IP Address of user's PC to 192.168.11.xx (Ex. 192.168.11.20 ; except 192.168.11.242 is default IP Address of Ethernet-232)
5. Open Ethernet-232 Configuration Application and then click Connect button.
6. After configuration application establishes connection successfully, click Preference button to change IP Address for IP Address, Subnet Mask and Gateway user's group and then click Save button. (IP Address must not to repeat with other user's IP Address in group)
7. Set IP Address of user's PC to old previous IP Address.

8. Unplug cross cable from user's PC and plug in LAN cable to make connection between user's PC and Ethernet-232.
9. Change IP Address in Ethernet-232 Configuration Application to new IP Address of Ethernet-232 and then click Connect button. User can connect Ethernet-232 board via Ethernet.

4. Configuration Application

Configuration application is software that shows how to use Ethernet-232. This configuration application can help user to configure data to Ethernet-232.

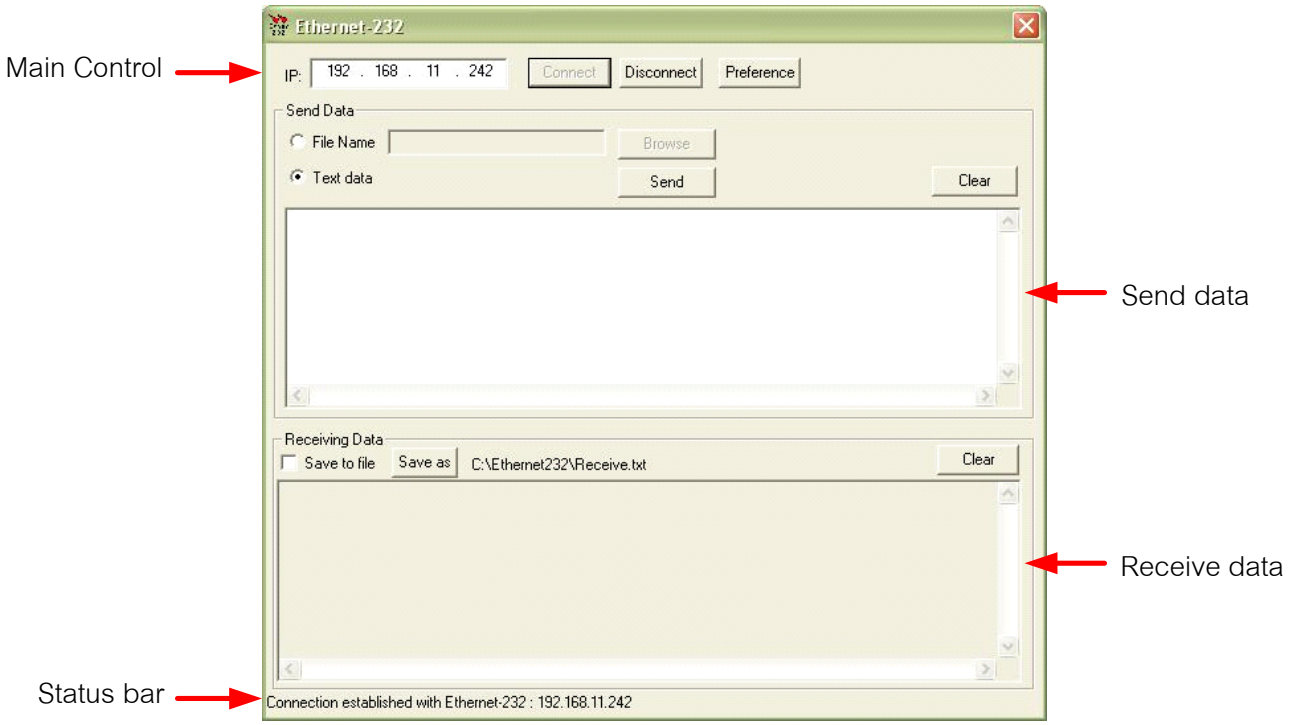

Figure 4-1 Application GUI

4.1. Main Control

Main control is for communication setting between PC and Ethernet-232 and it controls data input / output from Ethernet-232 to user's board.

4.1.1 Communication setting : This section is for network setting and UART setting. Figure 4-2 shows communication setting section.

Figure 4-2 Communication setting

1). “IP” is IP Address of Ethernet-232 board that user would like to connect.

2). “Connect Button” is to start connection between PC and Ethernet-232. After press this button, PC will try to connect to Ethernet-232 board with IP Address as same as IP : box. If PC is successfully connected to Ethernet-232 board, status bar should display “Connection established with Ethernet-232 : (IP Address)” as shown in Figure 4-3. If ,for some reasons, PC fails to connect to Ethernet-232 board, status bar should display “Connection failed” as shown in Figure 4-4.

Figure 4-3 Connection from PC to Ethernet-232 completed

Figure 4-4 Connection from PC to Ethernet-232 failed

3). “Disconnect Button” is to stop connection between PC and Ethernet-232. After press this button, communication between PC and Ethernet-232 is disconnected.

4). “Preference Button” is for setting UART and network. This button will be active after connection between PC and Ethernet-232 is established. After press this button, configuration window will appear. In configuration window, user can set UART properties and network properties as shown in Figure 4-5.

- Baud rate: Can be set from 300 to 115200 bits per second
- Data bits : Can be set 7 or 8 bits data only
- Stop bits : Can be set 1 or 2 stop bits
- Parity bit : Can be none, odd or even parity bit
- Flow control : Can be None, Hardware or Xon/Xoff
- IP : New IP address that user would like to set to Ethernet-232
- Subnet mask : New subnet mask that user would like to set to Ethernet-232
- Gateway : New gateway that user would like to set to Ethernet-232
- MAC : New MAC address that user would like to set to Ethernet-232

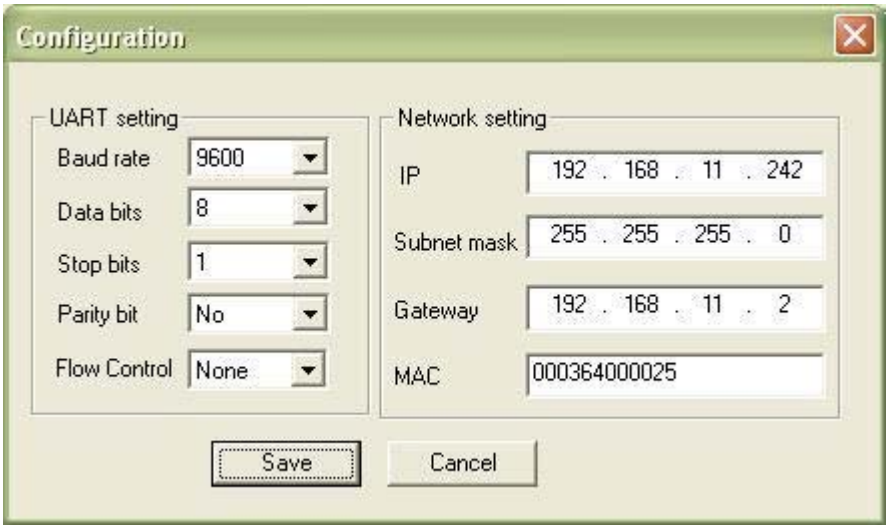

Figure 4-5 UART and Network properties

- Default IP Address is 192.168.11.242
- Default Subnet Mask is 255.255.255.0
- Default Gateway is 192.168.11.2
- Default Mac Address is 0x00, 0x03, 0x64, 0x00, 0x00, 0x25

4.2. Sending Data

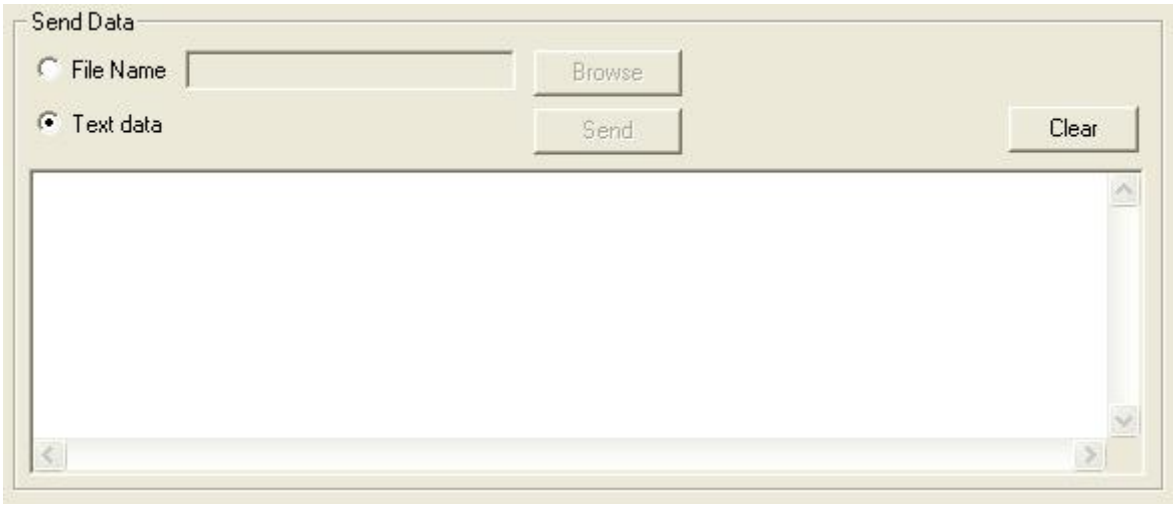

Figure 4-7 Sending Data Section

This section is for sending binary data in the form of text file to UART port of Ethernet-232. Figure 4-7 shows sending data section

User can send both text data and text file. For text data, user can insert text into text box and press “Send button” when user wants to send. For text file, user can browse file and press send button to send. The size of file is limited at 128 Kbytes because serial port is too slow communication. “Clear button” is for deleting a message in text box. Sending Data Section will become active when PC is connected to Ethernet-232. For adds a virtual serial com port for communication, user can use The Hardware Virtual Serial Port (VSP). (Detail in CD or www.design-gateway.com)

4.3. Receiving Data

This section displays text data from UART port. There is a limit of input buffer. User must save and analyze input data before new incoming data. In this example application, user can save the current input data to file and also can use “Clear button” to delete a message from text display. Figure 4-8 shows receiving data section.

The text display has limited size of 64 Kbytes. If data in text display is full and there is new incoming data then it will shift out the old data from text display (deleted) and append a new data.

Figure 4-8 Receiving Data Section

4.4. Status Bar

Status bar will display these messages when application is executing.

- Connection Established : Connect to Ethernet-232 successful
- Connection Failed : Connect to Ethernet-232 fail
- Connection Abandoned : Application loss connection
- Zero Length Message : Sending zero size message
- Unknown Socket Errors : Socket error can not keep connection
- Disconnected : Disconnection of Ethernet-232
- Sending Fail… : Sending message fail
- Open Send File Failed… : Can not open file
- Connecting… : Try to connect to Ethernet-232

4.5. Configuration Application Utility

4.5.1 How to change IP Address :

1). Connect configuration application to Ethernet-232.

2). After configuration application establishes connection successfully, press "Preference" then new dialog window will appear.

3). Change current IP address to new IP address then press "Save".

4). Disconnect Ethernet-232, press "Disconnect".

5). Remove Jumper and connect to Ethernet-232 again by using new IP address.

4.5.2 How to send text data from Ethernet-232:

1). Open HyperTerminal then set and connect HyperTerminal to serial port.

2). Connect configuration application to Ethernet-232 and wait until the connection is successfully established.

3). Type text data into text box and press "Send" then Ethernet-232 will send text data from UART module.

4). Text data will display in HyperTerminal

4.5.3 How to receive text data :

1). Connect configuration application to Ethernet-232 and wait until the connection is successfully established.

2). Open HyperTerminal and connect them to serial port.

3). Type text data on HyperTerminal.

4). Text data will be automatically displayed in text display.

5). User can save text data to file by press "save as" and browse to directory that would like to save.

5. Web Configuration

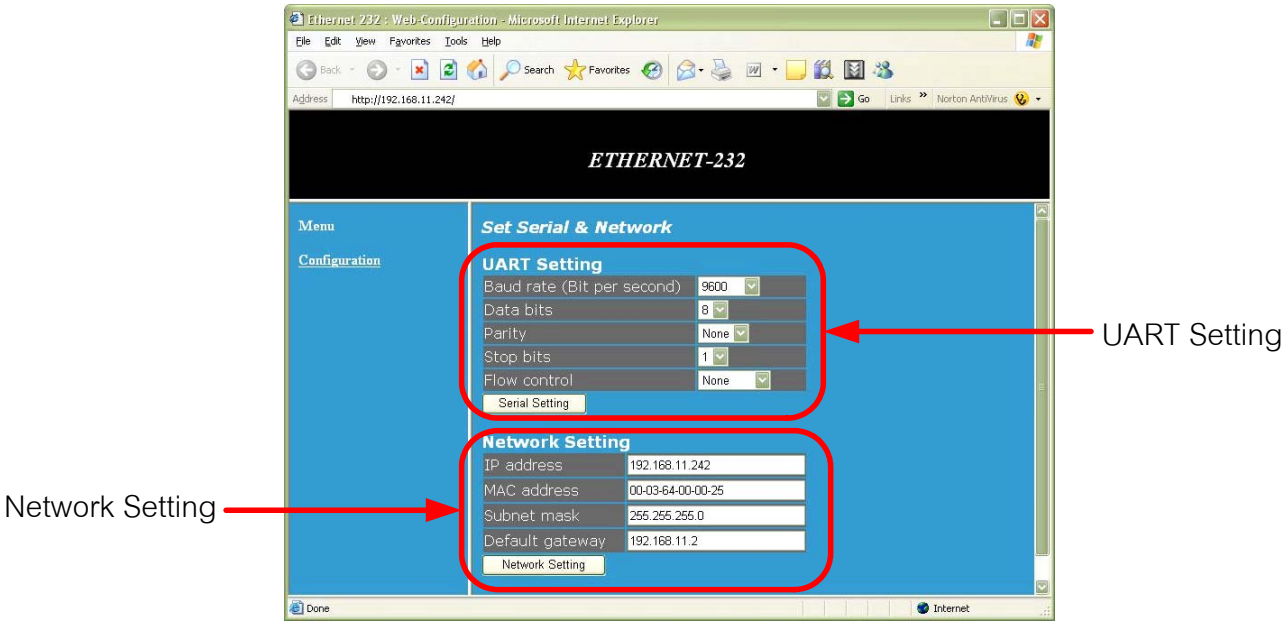

Figure 5-1 Web Configuration.

Web configuration is for setting UART and network. User can use web configuration after connection between PC and Ethernet-232 is established. User can type IP Address of Ethernet-232 in address bar of web browser. After web configuration appears, user can set UART properties and network properties as shown in Figure 5-1.

- Baud rate: Can be set from 300 to 115200 bits per second
- Data bits : Can be set 7 or 8 bits data only
- Stop bits : Can be set 1 or 2 stop bits
- Parity bit : Can be none, odd or even parity bit
- Flow control : Can be None, Hardware or Xon/Xoff
- IP : New IP address that user would like to set to Ethernet-232
- Subnet mask : New subnet mask that user would like to set to Ethernet-232
- Gateway : New gateway that user would like to set to Ethernet-232
- MAC : New MAC address that user would like to set to Ethernet-232

- Default IP Address is 192.168.11.242
- Default Subnet Mask is 255.255.255.0
- Default Gateway is 192.168.11.2
- Default Mac Address is 0x00, 0x03, 0x64, 0x00, 0x00, 0x25

Note

Note

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